Case 7559
Uterine leiomyoma with haemorrhagic degeneration

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Section: Genital (Female) Imaging
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Patient: 44 year(s), female

Clinical Summary

In a reproductive-age patient with history of uterine leiomyoma and no pelvic acute symptoms, an MRI study revealed signs of haemorrhagic (red) degeneration.

Clinical History and Imaging Procedures

The patient presented without acute symptoms, referred for an MRI study due to recent size increase of a uterine leiomyoma previously documented by ultrasonography.

Discussion

Uterine leiomyoma is the most frequent solid benign uterine neoplasm, occurring in 20-30% of women within the reproductive years and composed mainly of smooth muscle with varying amounts of fibrous connective tissue elements.

Their oestrogen-dependent nature is suggested by rapid development during pregnancy or oral contraceptive use and regression after menopause. The enlargement of these lesions may lead to outgrowth of their blood supply, resulting in various types of degeneration. The most common type is hyaline degeneration developing in 60% of the cases. Cystic, myxoid and haemorrhagic (red) degeneration rarely occur. Most of these histopathologic findings are unrelated to the clinical symptoms.

Haemorrhagic degeneration is a subtype of haemorrhagic infarction that results from obstruction of

venous outflow (venous thrombosis) at the periphery of the uterine leiomyoma or rupture of intratumoural arteries. They are usually related to rapid growth of leiomyoma during pregnancy or with the use of oral contraceptives, what was not present in our case. It may present with systemic symptoms, such as abdominal pain, low-grade fever and leukocytosis.

Ultrasonography can often diagnose and locate leiomyomas, but MRI is the most accurate imaging technique for a precise characterization especially useful in symptomatic patients.

Non-degenerated uterine leiomyomas are most commonly well-circumscribed homogeneous nodular lesions with signal intensity equal or slightly decreased comparatively to the myometrium on T1-weighted images and low signal intensity on T2-weighted images. They may be delineated by a discrete low signal intensity margin and in about 50% of cases a high intensity rim surrounds the lesion corresponding to dilated lymphatics, dilated veins or oedema.

Haemorrhage in a leiomyoma may have variable MR appearances depending on the imaging sequence used and on the stage of evolution of the bleeding.
T1-weighted images may show high signal diffusely distributed (early) or peripherally as a rim (late), persisting in the fat suppression sequence. Very high signal intensity on T1-weighted imaging represents intracellular methemoglobin from subacute haemorrhage and is accompanied by a signal intensity decrease on T2-weighted images. With maturation of the haemorrhage, the high signal intensity on T1-weighted imaging becomes confined to a peripheral rim and a low signal intensity rim is seen on T2-weighted images. This peripheral rim corresponds to the obstructed veins at the periphery of the mass.

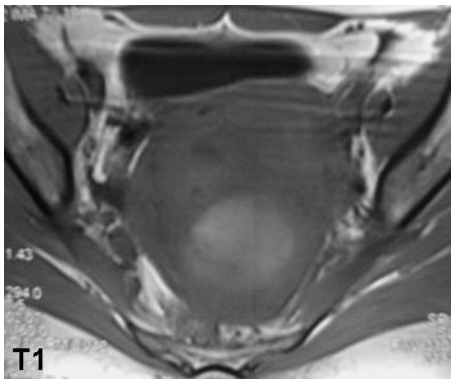
MRI allows an accurate diagnosis and characterization of the prevalent uterine leiomyomas, namely of its possible complications as rare hemorrhagic (red) degeneration enabling radiological differentiation from other clinical conditions that may need surgical intervention.

Final Diagnosis

Uterine leiomyoma with hemorrhagic degeneration.

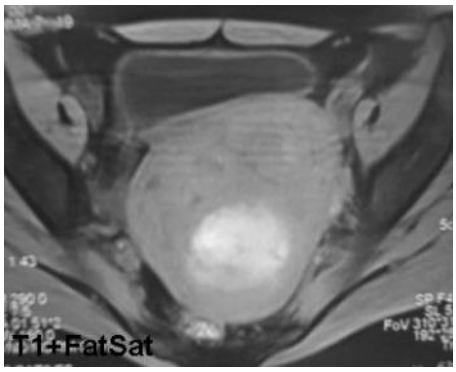
Figures

Figure 1 No title



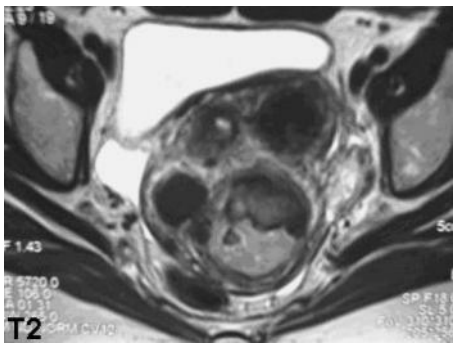
On T1-weighted axial image a posterior uterine subserosal leiomyoma with heterogeneous high signal intensity is detected.

Figure 2 No title



The high signal intensity persists on the T1-weighted fat suppression sequence, not consistent with adipose tissue. (axial plane, at the same level of figure 1)

Figure 3 No title



Axial T2- weighted image shows decreased signal intensity indicating the presence of blood.

Figure 4 No title

Sagittal plane also showing decreased signal intensity on T2- weighted image. Note the small posterior submucosal leiomyoma (arrow).

MeSH

Uterine Neoplasms [C13.371.270.875]
Tumors or cancer of the UTERUS.

References

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Citation

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